Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ TP: \_\_\_\_\_\_\_

CW 59: Special Right Triangles 45 – 45 – 90

**Honors Geometry**

Simplify the following expressions:

Big Prediction: If the legs of the right triangle were 100, what would the length of the hypotenuse be?  
Directions: Copy the following image in your notebook:

|  |  |  |
| --- | --- | --- |
| 1  1 | 2  2 | 3  3 |

5. Answer the following questions in your notebook:   
a) Find the length of the hypotenuse of each triangle (most simplified form).

b) Draw a prediction for what the next two triangles (side lengths 4 and 5) would look like if they followed this pattern. Label the sides and the angles.

c) Predict: If you had a right triangle with side lengths 100 cm and 100 cm, what would you predict the length of the hypotenuse be? What must be true of the angles inside the triangle for your prediction to be true?

6. Rule #1: Generalize your observations and create a rule you could use to find the length of the hypotenuse of any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ triangle with side length *n*. Draw a picture and an example to go with your rule.

**Complete the following set of problems in your notebook.**

|  |  |  |
| --- | --- | --- |
| 1. Find the length of the hypotenuse. | 1. Find x and y.   Screen%20Shot%202016-01-21%20at%207 | 1. Find x and y .   y |

|  |  |
| --- | --- |
| 1. Find x. | 1. Find x. |
| 6. The diagonal of a square is √12  a. Find the length of the side of the square.  b. Find the area of the square. | Screen%20Shot%202016-01-21%20at%2077. Find n and m. |
| 9. Fill in the table.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | 5 |  | 17 | 9 |  | |  |  | 4 |  |  | 24 | | 10. The area of the shaded region is 45 inches squared. Find the missing hypotenuses for both triangles. Write a proof explaining how you found your answer.  7√2 in. |